Electromechanical Lock Cylinder

Claims

1. Electromechanical lock cylinder that cooperates with evaluation electronics to recognize access authorization and has a housing that includes opposite cylindrical receptacles, in which either a lock core, which can be operated by a key, or a knob shaft (11), which is connected to rotate in unison with a knob, are mounted to rotate, in which the lock cores or knob shafts cooperate with a lock tab (13), which operates, a bolt or a latch of a door lock, and, with a fitting key or access authorization, an electromechanically driven blocking or coupling element (14) is moved from the rest position to an operating position and a splined connection is produced between the key or knob and the lock tab, characterized by the fact that the lock tab (13) is freely rotatable relative to the two lock cores or the two knob shafts in the rest position of the blocking or coupling element.

2. Lock cylinder according to Claim 1, characterized by the fact that a continuous lock core or continuous knob shaft is present, which extends from one side of the housing to the opposite side and can be operated from both sides by a key or rotated by a knob.

3. Electromechanical lock cylinder, which cooperates with evaluation electronics to recognize access authorization and has a housing that includes two opposite cylindrical receptacles, in which, on one side of the housing, a lock core, which can be operated by a key, and, on the opposite side, a knob shaft (11), which is connected to rotate in unison with a knob, are mounted to rotate, in which the lock core and/or knob shaft cooperate with a lock tab (13), which operates, in particular, a bolt or a latch of a door lock, and with a fitting key and/or access authorization, an electromechanically driven blocking or coupling element (14) is moved from the rest position to an operating position and produces a splined connection between the key and/or knob and the lock tab, characterized by the fact that the lock tab (13) is freely rotatable relative to the lock core (11) and the knob shaft in the rest position of the blocking or coupling element.

4. Electromechanical lock cylinder according to Claim 3, characterized by the fact that the lock core and knob shaft are connected to rotate in unison with each other or are made in one piece.

5. Electromechanical lock cylinder, which cooperates with evaluation electronics to recognize an access authorization and has a housing that includes a cylindrical receptacle, in which either a lock core, which can be operated by a key, or a knob shaft (11), which is connected to rotate in unison with a knob, are mounted to rotate, in which the lock core or the knob shaft cooperate with a lock tab (13), which operates a bolt or latch of a door lock, and, with a fitting key and/or access authorization, an electromechanically driven blocking or coupling element (14) is moved from

the rest position to an operating position and produces a splined connection between the key or knob and the lock tab, characterized by the fact that the lock tab (13) is freely rotatable relative to the lock core or the knob shaft in the rest position of the blocking or coupling element.

6. Lock cylinder according to one of the Claims 1 to 5, characterized by the fact that the blocking or coupling element (14) is arranged on or in the lock core or on or in the knob shaft (11) and rotates with it.

7. Lock cylinder according to one of the Claims 1 to 4, characterized by the fact that lock tab (13) is arranged on a rotatable sleeve (35).

8. Lock cylinder according to one of the Claims 1 to 7, characterized by the fact that the blocking or coupling element includes an electromagnetic drive.

9. Lock cylinder according to one of the Claims 1 to 8, characterized by the fact that the blocking or coupling element includes an electric motor drive (23).

10. Lock cylinder according to Claim 9, characterized by the fact that the electric motor drive has an eccentric (15, 16), which moves a driver (19) back and forth between the rest position and the operating position, in which it engages in a recess (28) or lock tab (13) or the rotary sleeve.

11. Lock cylinder according to Claim 10, characterized by the fact that the rest position and/or the operating position of driver (19) lie beyond the corresponding dead

centers of the eccentric (15, 16) by a determinable angle of rotation.

12. Lock cylinder according to Claim 11, characterized by the fact that the angle of rotation is 10° to 30° beyond the corresponding dead center.

13. Lock cylinder according to one of the Claims 10 to 12, characterized by the fact that the eccentric has a pin (16) arranged eccentric around motor shaft (17), which engages in a groove (18) extending across the lift movement of the driver (19) and perpendicular to the motor shaft, whose position and length are dimensioned, so that a rotary movement from the rest position to the operating position is only possible in one direction of rotation, and the rotary movement (21) from the operating position at the rest position of the driver is only possible in the opposite direction of rotation (22).

14. Lock cylinder according to Claim 13, characterized by the fact that the length and position of groove (18) are chosen, in order to permit further rotation of the eccentric from the rest position to the operating position of the driver via the dead center by the angle of rotation, and vice versa.

15. Lock cylinder according to one of the Claims 10 to 14, characterized by the fact that the driver includes a slide (24), whose free end (25) is guided in a sleeve (26), whose free end (27), in the operating position, enters the recess (28) of lock tab (13) or the rotary sleeve, and in whose interior a compression spring (29) is arranged, which cooperates with the free end of the pin.

16. Lock cylinder according to Claim 15, characterized by the fact that the sleeve, on its side opposite the free end, has a stop (30), against which the thickened end (25) of the slide (24) stops.

17. Lock cylinder according to one of the Claims 15 or 16, characterized by the fact that the depth of recess (28) of the lock tab or rotary sleeve is dimensioned, so that, when the driver is engaged, the compression spring (29) in the sleeve is still under tension.

18. Lock cylinder according to one of the Claims 1 to 17, characterized by the fact that the driver is held in the rest position by spring force.

19. Lock cylinder according to one of the Claims 1 to 18, characterized by the fact that recording devices (36) are present that record the position of the coupling element.

20. Lock cylinder according to Claim 19, characterized by the fact that the recording devices include at least one hall sensor (37) and/or at least one capacitive or inductive sensor (38) or a switch (39), which cooperates with the moving element of the coupling element.

21. Lock cylinder according to Claim 20, characterized by the fact that the recording devices (36) cooperate with driver (19).

22. Lock cylinder according to Claim 19, characterized by the fact the recording devices (36) record the position of the eccentric or the motor shat.

23. Lock cylinder according to one of the Claims 19 to 22, by the fact that the recording devices generate at

least one signal, and preferably consecutive signals, in order to move the coupling element into the rest position, as long as the coupling element is situated in the operating position or still not in the rest position, and if the rest position is to be assumed.